

Claims

- [1] A fixture, having a screw shape, to be implanted in bone tissue, the fixture comprising an uppermost part protruding outside the bone tissue when implanted in the bone tissue and a body part placed in the bone tissue, the body part having a cortical bone coupling part installed in cortical bone and a cancellous bone coupling part installed in cancellous bone, wherein the cancellous bone coupling part comprises a large cancellous screw thread formed on a circumferential outer surface of the cancellous bone coupling part and a small cancellous screw thread formed on a ridge of the large cancellous screw thread, and the cortical bone coupling part comprises a small cortical screw thread having a pitch, a root diameter and an outer diameter almost equal to a pitch, a root diameter and an outer diameter of the small cancellous screw thread.
- [2] A fixture, having a screw shape, to be implanted in bone tissue, the fixture comprising an uppermost part protruding outside the bone tissue when implanted in the bone tissue and a body part placed in the bone tissue, the body part comprising a cortical bone coupling part installed in cortical bone and a cancellous bone coupling part installed in cancellous bone, wherein the cancellous bone coupling part comprises a large cancellous screw thread formed on a circumferential outer surface of the cancellous bone coupling part and a small cancellous screw thread formed on a ridge of the large cancellous screw thread, and the cortical bone coupling part comprises a large cortical screw thread extending from the large cancellous screw thread and a small cortical screw thread formed on a ridge of the large cortical screw thread, wherein the number of small cortical screw threads is greater than the number of small cancellous screw threads.
- [3] The fixture according to claim 2, wherein the large cortical screw thread has a lead equal to a lead of the large cancellous screw thread.
- [4] The fixture according to claim 3, wherein a root diameter of the large cortical screw thread is increased from a lower end thereof to an upper end thereof and is equal to a root diameter of the small cortical screw thread at the upper end thereof.
- [5] The fixture according to claim 4, wherein a root diameter of the large cancellous screw thread is constant throughout the cancellous bone coupling part.
- [6] The fixture according to any one of claims 1 through 5, further comprising:

a plurality of longitudinal grooves formed in a circumferential outer surface of the cortical bone coupling part.

AMENDED CLAIMS

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+ STATEMENT

2. A fixture, having a screw shape, to be implanted in bone tissue, the fixture comprising an uppermost part protruding outside the bone tissue when implanted in the bone tissue and a body part placed in the bone tissue, the body part comprising a cortical bone coupling part installed in cortical bone and a cancellous bone coupling part installed in cancellous bone, wherein the cancellous bone coupling part comprises a large cancellous screw thread formed on a circumferential outer surface of the cancellous bone coupling part and a small cancellous screw thread formed on a ridge of the large cancellous screw thread, and the cortical bone coupling part comprises a large cortical screw thread extending from the large cancellous screw thread and a small cortical screw thread formed on a ridge of the large cortical screw thread, wherein the number of small cortical screw threads is greater than the number of small cancellous screw threads.

Statement under Article 19(1)

In response to the Written Opinion mailed on 22 June, 2006, please consider the following remarks in conjunction with the Amendment concurrently filed herewith.

PCT/KR2006/000316 (hereinafter, "this invention") relates to a fixture which has a plurality of small screw threads formed on a ridge of a large screw on the circumferential outer surface of the cortical bone coupling part. Therefore the present invention is ensured by the increased contact surface and stress around the large screw thread is distributed.

In the Written Opinion, the examiner indicated that claims 2 to 6 of this invention do not satisfy Article 33(3) of the PCT because claim 2 lacks an inventive step in view of any one of the cited documents(D1 ~ D7). And also the examiner indicated that typographical errors had been noted in claim 2.

According to the claim 2, the cortical bone coupling part comprises a large cortical screw thread extending from the large cancellous screw thread and a small cortical screw thread formed on a ridge of the large cortical screw thread(hereinafter "Character 1"), wherein the number of small cortical screw threads is greater than the number of small cancellous screw threads(hereinafter "Character 2").

Character 1 is not disclosed or suggested in D1-D7. Even though D1-D7 disclosed two different thread regions, these are not small screw threads but large screw threads. Character 1 has an effect in that, the reliable fixing force of the fixture to cortical / cancellous bone is ensured by the increased contact surface and stress around the large screw thread is distributed. The above effect of the invention is not disclosed or suggested in D1-D7.

Furthermore, Character 2 is not disclosed or suggested in D1-D7. In this invention, the pitch of the small screw thread of a cortical bone coupling part of the fixture, which is implanted in cortical bone, is less than that of the small screw thread of a cancellous bone coupling part, so that stress otherwise concentrated on the cortical bone is distributed to the cancellous bone, thus preventing bone resorption, and promoting bone integration. The above effect of the invention is not disclosed or suggested in D1-D7.

In consequence, Claim 2 involves an inventive step and thus satisfies Article 33(3) of the PCT.